WHAT IS CLAIMED IS:

1. A photo-sensing device package comprising:

(a) an assembly portion including:

i. a substrate formed of a material substantially transparent to light within a predetermined range of wavelengths;

ii. at least a first metal layer formed on said substrate about a front surface region thereof; and,

iii. at least one passivation layer formed to extend over said first metal layer, said passivation layer being patterned to define a plurality of first and second access openings to respectively describe on said first metal layer a plurality of first and second solder bump pads, each of said first solder bump pads being interconnected to at least one of said second solder bump pads;

(b) a sensing portion including at least one photo-sensing die, said photo-sensing die having formed at a forward surface thereof at least one photo-sensing area for photo-electronically transducing light within said predetermined range of wavelengths, said photo-sensing area opposing said front surface region of said

assembly portion substrate, said photo-sensing die having formed thereon a plurality of solder bump pads electrically coupled to said photo-sensing area; and,

(c) a plurality of first solder joints joining said sensing and assembly portions, each of said first solder joints extending between one said solder bump pad of said sensing portion and one said first solder bump pad of said assembly portion.

2. The photo-sensing device package as recited in Claim 1 further comprising a plurality of second solder joints each extending from said second solder bump pad through one said second access opening of said assembly portion for mounting to an external circuit.

3. The photo-sensing device package as recited in Claim 2 wherein said second solder joints each extend from said second bump pad transversely beyond said photo-sensing die of said sensing portion joined thereto.

4. The photo-sensing device package as recited in Claim 1 wherein said assembly portion includes at least one dust-seal layer formed on said substrate about said front surface region thereof, said dust seal layer extending transversely between said substrate and said photo-sensing die to enclose a sealed compartment therebetween.

5. The photo-sensing device package as recited in Claim 4 wherein said dust-seal layer is formed of a polymer material.

6. The photo-sensing device package as recited in Claim 1 wherein said substrate is formed of a borosilicate glass material.

7. The photo-sensing device package as recited in Claim 6 wherein said substrate is formed with a thickness within the approximate range of 250 to 800 micrometers.

8. The photo-sensing device package as recited in Claim 4 wherein said substrate is formed of a borosilicate glass material having a thickness within the approximate range of 250 to 800 micrometers.

9. The photo-sensing device package as recited in Claim 1 wherein said photo-sensing area of said photo-sensing die is disposed in optical alignment with said front surface region of said substrate for receiving light passed therethrough.

10. The photo-sensing device package as recited in Claim 1 wherein said assembly portion includes a second metal layer formed at least partially on said passivation layer, said second metal layer being patterned to extend at least partially over said first and second access openings to contact said first and second solder bump pads.

11. The photo-sensing device package as recited in Claim 1 wherein said substrate includes a rear surface on a side thereof opposing said front surface, said substrate having a thin film coating formed on at least one of said front and rear surfaces for altering the transmissivity therethrough of light within said predetermined range of wavelengths.

12. The photo-sensing device package as recited in Claim 4 wherein said substrate includes a rear surface on a side thereof opposing said front surface, said substrate having a thin film coating formed on at least one of said front and rear surfaces for altering the transmissivity therethrough of light within said predetermined range of wavelengths.

13. The photo-sensing device package as recited in Claim 1 wherein each of said solder bump pads of said sensing portion and said first and second solder bump pads of said assembly portion is formed with a multi-layered structure including at least an adhesion layer, a diffusion barrier layer, and a solder wettable layer.

14. A method of packaging a photo-sensing device comprising the steps of:

(d) establishing at least one photo-sensing die having at least integrated one photo-sensing area defined at a forward surface thereof for photo-electronically transducing light within a predetermined range of wavelengths;

(e) forming on said photo-sensing die a plurality of first solder bumps electrically coupled to said photo-sensing area;

(f) establishing at least one unit substrate formed of a material substantially transparent to light within said predetermined range of wavelengths;

(g) forming at least one metal layer on said unit substrate about a front surface region thereof,

(h) configuring said metal layer to define a plurality of first and second solder bump pads and a plurality of interconnection lines each extending between at least one first solder bump pad and at least one said second solder bump pad;

(i) forming at least one passivation layer to extend over said metal layer;

(j) configuring said passivation layer to define a plurality of first and second access openings aligned respectively with said first and second solder bump pads;

(k) placing said photo-sensing die in inverted manner over said unit substrate, said first solder bumps each engaging one said first access opening of said passivation layer to contact one said first solder bump pad, said photo-sensing area of said photo-sensing die being thereby guided into alignment with said front surface region of said unit substrate; and,

(l) heating said first solder bumps to a characteristic reflow temperature thereof for attachment to said first solder bump pads of said unit substrate.

15. The method of packaging a photo-sensing device as recited in Claim 14 further comprising the step of attaching a plurality of second solder bumps respectively to said second solder bump pads through said second access openings.

16. The method of packaging a photo-sensing device as recited in Claim 14 further comprising after step (g) the step of forming a dust-seal layer about said front surface region of said unit substrate.

17. The method of packaging a photo-sensing device as recited in Claim 15 further comprising the steps of pre-forming said first and second solder bumps with solder ball configurations, said second solder bumps being greater in a diametric dimension than said first solder bumps.

18. The method of packaging a photo-sensing device as recited in Claim 14 further comprising the step of forming an upper metal layer at least partially on said passivation layer, said upper metal layer being configured to extend at least partially over said first and second access openings to contact said first and second solder bump pads.

19. The method of packaging a photo-sensing device as recited in Claim 14 wherein a plurality of said unit substrates are integrally defined on a substrate, said substrate being diced after step (j) for separation of said unit substrates one from the other.

20. The method of packaging a photo-sensing device as recited in Claim 14 wherein a plurality of said photo-sensing dice are integrally defined on a wafer, said wafer being diced before step (i) for separation of said photo-sensing dice one from the other.

21. The method of packaging a photo-sensing device as recited in Claim 20 wherein a pick-and-flip-and-place operation is sequentially executed to place said photo-sensing dice respectively over corresponding ones of said unit substrates.

22. A method of packaging a photo-sensing semiconductor device comprising the steps of:

(m) establishing at least one semiconductor die having at least integrated one photo-sensing area defined at a forward surface thereof for photo-electronically transducing light within a predetermined range of wavelengths;

(n) forming on said semiconductor die a plurality of solder bump pads to be electrically coupled to said photo-sensing area;

(o) attaching a plurality of first solder bumps respectively to said solder bump pads formed on said semiconductor die;

(p) establishing at least one unit substrate formed of a material substantially transparent to light within said predetermined range of wavelengths;

(q) applying at least a first metal layer on said unit substrate about a front surface region thereof;

(r) selectively removing portions of said first metal layer to define a plurality of first and second solder bump pads and a plurality of interconnection lines each extending between at least one first solder bump pad and at least one said second solder bump pad;

(s) forming at least one passivation layer to extend over said first metal layer;

(t) selectively removing portions of said passivation layer to define a plurality of first and second access openings aligned respectively with said first and second solder bump pads;

(u) placing said semiconductor die in inverted manner over said unit substrate, said first solder bumps each engaging one said first access opening of said passivation layer to contact one said first solder bump pad, said photo-sensing area of said semiconductor die being thereby guided into alignment with said front surface region of said unit substrate; and,

(v) heating said first solder bumps to a characteristic reflow temperature thereof for attachment to said first solder bump pads of said unit substrate.

23. The method of packaging a photo-sensing semiconductor device as recited in Claim 22 further comprising the step of attaching a plurality of second solder bumps respectively to said second solder bump pads through said second access openings.

24. The method of packaging a photo-sensing semiconductor device as recited in Claim 22 further comprising after step (h) the steps of applying a dust-sealing material over at least a portion of said passivation layer; and, selectively removing portions of said dust-sealing material to form a dust-seal layer about said front surface region of said unit substrate.

25. The method of packaging a photo-sensing semiconductor device as recited in Claim 22 wherein a plurality of said unit substrates are integrally defined on a substrate, said substrate being diced after step (j) for separation of said unit substrates one from the other.

26. The method of packaging a photo-sensing semiconductor device as recited in Claim 22 wherein a plurality of said semiconductor dice are integrally defined on a wafer, said wafer being diced before step (i) for separation of said semiconductor dice one from the other.

27. The method of packaging a photo-sensing semiconductor device as recited in Claim 26 wherein a pick-and-flip-and-place operation is sequentially executed to place said semiconductor dice respectively over corresponding ones of said unit substrates.

28. The method of packaging a photo-sensing semiconductor device as recited in Claim 22 further comprising before steps (c) and (i) the steps of applying a solder flux material respectively to said solder bump pads of said semiconductor die and said first solder bump pads of said unit substrate.

29. The method of packaging a photo-sensing semiconductor device as recited in Claim 22 further comprising the step of forming a second metal layer at least partially on said passivation layer, said second metal layer being patterned to extend at least partially over said first and second access openings to contact said first and second solder bump pads.